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## ENHANCED SHORTWAVE CLOUD RADIATIVE FORCING DUE TO ANTHROPOGENIC AEROSOLS

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Anthropogenic aerosols in the troposphere can influence the microphysical properties of clouds and in turn their reflectivity (albedo), thereby exerting a radiative forcing of climate. The magnitude of this forcing is quite uncertain, but estimates based on model calculations and measurements of anthropogenic sulfate loadings suggest that this forcing is approximately -1 watt per meter squared, global average, where the negative sign indicates a cooling influence. Such a forcing is comparable to the shortwave forcing due to direct light scattering by anthropogenic aerosols, and, likewise, (but of opposite sign) to forcing by anthropogenic greenhouse gases. This article presents the theoretical basis of this so-called indirect forcing and reviews pertinent observational studies of the influence of anthropogenic aerosols on cloud microphysical and radiative properties. Approaches for representing this phenomenon in climate models are described and results of initial studies with climate models are presented.